REMARKS

Claims 6 and 13 are objected to because of informalities. The applicants agree with the Examiner's interpretation of the "zeroing out" language, and accordingly have amended claims 6 and 13 to read "resetting the state of the speech decoder filter" instead of the narrower "zeroing out the state of the speech decoder filter."

Unrelated to patentability, the applicants have added new claims 21 and 22, which are supported by various portions of the specification. For example, support for claim 21 may be found at page 10, line 28 – page 11, line 6 of the specification, and support for claim 22 may be found at page 3, line 37 – page 4, line 10 of the specification.

Claims 1-17 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Chen (U.S. Patent Number 5,751,725) in view of Jacobs et al. (U.S. Patent Number 5,414,796, hereinafter "Jacobs") and claims 18-20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Chen. The applicants respectfully disagree with the Examiner's rejections and request reconsideration. Nonetheless, claims 18-20 have been canceled without prejudice or disclaimer.

Independent claim 1 recites (emphasis added) "determining if the first **frame rate was in error** to produce an error determination; and updating a **state of a speech decoder filter** based on the error determination." Independent claim 9 recites (emphasis added) "determining, based on the second frame rate, if the first **frame rate was in error** to produce an error determination; and updating a **state of a speech decoder filter** based on the error determination." Independent claim 15 recites (emphasis added) "means for determining a **validity of a frame rate**; a speech decoder, coupled to the means for determining, modifying a **state of a filter** based on the validity of the frame rate." Thus, paraphrasing now, the independent claims describe validating a prior frame rate determination and modifying a filter state based on the validity of the frame rate determination. The applicants submit that neither Chen nor Jacobs teach or suggest validating a prior frame rate determination and neither teach or

suggest modifying a filter state based on the validity of the frame rate determination.

Chen, as cited by the Examiner, describes a method to improve the chances of making a correct rate determination. Specifically, column 11 lines 25-30 (as cited) discuss adjusting SER thresholds based on comparisons between the rate of the current frame and the previous frame. Again, in Chen, this is done to improve the chance of making a correct rate determination, not to detect a current or prior frame rate mis-determination.

As with Chen, the techniques taught by Jacobs do not teach a method for detecting prior frame rate mis-determinations. In general, Jacobs minimizes speech quality degradation in corrupted frames at a particular frame rate, but the applicants do not see that Jacobs questions or determines the validity of a prior frame rate determination.

The Examiner asserts that Jacobs teaches making correction to the characteristics of decoder's filters when defective, erased or blank frames are detected, citing Jacobs column 41, lines 20-23 and FIG. 21c. Jacobs column 40, line 53 – column 41, line 24 reads (emphasis added):

> **In the event that a frame is lost due to a channel error, the** vocoder attempts to mask this error by **maintaining a fraction of the previous frame's energy and smoothly transitioning to background noise. In this case the pitch gain is set to zero;** a random codebook is selected by using the previous subframe's codebook index plus 89; the codebook gain is 0.7 times the previous subframe's codebook gain. It should be noted that there is nothing magic about the number 89, this is just a convenient way of selecting a pseudorandom codebook vector. The previous frame's LSP frequencies are forced to decay toward their bias values as...
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> The LSP frequency bias values are shown in Table 5. The parameters received and corresponding subframe information is listed in FIG. 21b.
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> **If the rate cannot be determined** at the receiver, the packet is discarded and an erasure is declared. However, if the receiver **determines** there is a **strong likelihood the frame was transmitted at full rate,** though with errors the following is done. As discussed previously at full rate, the most perceptually sensitive bits of the compressed voice packet data are protected by an internal CRC. At the decoding end, the syndrome is calculated as the remainder from dividing the received vector by g(x), from equation (46). If the syndrome indicates no error, the packet is accepted regardless of the state of the overall parity bit. If the syndrome indicates a single error, the error is corrected if the state of the overall parity bit does not check. If the syndrome indicates more than one error, the packet is discarded. If an uncorrectable error occurs in this block, the packet is discarded and an erasure is declared. Otherwise **the pitch gain is set to zero** but the **<u>rest of the parameters</u>** are used as received with corrections, as illustrated in FIG. 21c.

However, the applicants submit that Jacobs instead teaches zeroing-out received encoded parameters (e.g., the pitch gain) of the received erroneous frame before using that frame in the decode process. Moreover, FIG. 21c depicts two columns, labeled

"RECEIVED PARAMETERS FOR AIR FRAME" and "DECODE SUBFRAME PARAMETERS USED". FIG. 21c clearly refers to frame parameters, not filter states. Thus, Jacobs does not adjust the current filter states (such as before applying the currently unmodified received frame, e.g.) and does not detect a prior frame rate mistake.

Regarding claims 3 and 10, the Examiner cites Chen (Col 11, line 27-30). From Col 11, lines 15-25, Chen is taking advantage of the statistical nature of speech whereby if someone is speaking the next frame is also more likely to be speech (i.e., full rate). If they are silent, the next frame is more likely to be silent (i.e., 1/8th rate). Chen uses this to adjust SER thresholds. Taking advantage of statistics cannot be used to accurately determine a mis-determined frame rate. Moreover, claims 3 and 10 recite (emphasis added) "determining if a transition from the first frame rate to the second frame rate was **invalid**," not just unlikely. For example, our disclosure refers to pre-defined rate transition rules that the speech encoder is assumed to have followed, for example, where full to 1/8th rate transitions are not allowed as per the encoder specification.

Regarding claims 6 and 13, the applicants submit that it is not obvious to reset filter states on detection of a "bad" frame. In speech coding, known erasure mitigation techniques involve extrapulation and processing filters using the previous state. Again, Jacobs is detecting current bad frames and trying to minimize disruption to the filter state when processing the current frame by modifying the current frame before processing. In contrast, our disclosure involves detecting that a previous frame was handled incorrectly. Therefore, in our disclosure we determine that the filter state prior to the processing of the current frame is corrupted and thus reset it.

Since none of the references cited, either independently or in combination, teach all of the limitations of base claims 1, 9 or 15, or therefore, all the limitations of their respective dependent claims, the applicants assert that neither anticipation nor a prima facie case for obviousness has been shown. No remaining grounds for rejection or objection being given, the applicant now respectfully submits that the claims in their present form are patentable over the prior art of record, and are in condition for allowance. As a result, allowance and issuance of this case is earnestly solicited.

The Examiner is invited to contact the undersigned, if such communication would advance the prosecution of the present application. Lastly, please charge any additional fees (including extension of time fees) or credit overpayment to Deposit Account No. **502117 – Motorola, Inc.**

Respectfully submitted,
L. Proctor et al.

By: *[signature]*

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